

**REMARKS**

Reconsideration of the application as amended is respectfully requested.

The Examiner's communication dated May 12, 2006 is acknowledged.

Claims 3 – 5, 7 – 10, 12 – 14, 16 – 20, 24 – 26, 28 – 31, and 53 – 76 are pending. Claims 5, 14, and 26 are objected to, requiring correction of informalities. Claims 3 – 5, 7 – 10, 12 – 14, 16 – 20, 24 – 26, 28 – 31, and 53 – 70 stand rejected for obviousness under 35 USC § 103. Claims 71 – 76 stand rejected on unspecified grounds.

By the present amendment, claims 5, 14, 26, 62, 73, 75 and 76 are amended. After this amendment, claims 3 – 5, 7 – 10, 12 – 14, 16 – 20, 24 – 26, 28 – 31, and 53 – 76 are pending. Claims 5, 14, and 26 are amended as required by the Examiner to correct the informalities identified by the Examiner. Claims 62, 73, 75 and 76 are amended for clarity and to correct typographical and grammatical errors. Support for the insertion in claim 73 is found in original paragraph 24 of the present application. No new matter is added by these amendments.

**Rejections under 35 USC § 103 traversed**

Claims 3, 7 – 10, 12, 16 – 20, 24, 26 – 31, and 53 – 57 stand rejected under 35 USC § 103 as being unpatentable over Peng et al. (US 2002/0016075) in view of Liao et al. (US 2005/0087513). These rejections are respectfully traversed on grounds that the Examiner has not presented a *prima facie* case of obviousness under 35 USC § 103. Claim 55, from which claims 3, 7 – 10, and 53 – 54 depend, recites "A method comprising:

a) forming a layer of sol-gel material on at least a portion of at least one surface of a substrate, the layer of sol-gel material being a precursor of a conductive material;

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- b) selectively modifying one or more material properties of at least a first portion of the formed layer of sol-gel material by selectively directing laser radiation on the first portion; and
- c) selectively removing at least a second portion of the formed layer of material."

The Examiner correctly states that Peng et al. fails to teach the forming of a layer of sol-gel precursor material. Thus Peng et al. fails to teach paragraph (a) of claim 55. However, Peng also fails to teach paragraphs (b) and (c) of claim 55 because there is no layer of sol-gel material disclosed anywhere in Peng et al. The sol-gel material is added only by the Examiner's postulated hypothetical combination with Liao et al. Neither Peng et al. nor Liao et al. suggests such a combination. It is well-established law that the references themselves must suggest the combination. There must be at least a suggestion of the combination in the prior art of record to establish a *prima facie* case of obviousness. There is no such suggestion in the prior art of record. Therefore, applicants respectfully submit that the Examiner has not shown that claims 3, 7 – 10, and 53 – 55 would have been obvious to a person of ordinary skill at the time of the invention.

Claim 56, from which claims 12 and 16 – 20 depend, recites: "A method of forming a thin film, comprising:

a step for forming a layer of sol-gel material on at least a portion of at least one surface of a substrate, the layer of sol-gel material being a precursor of a conductive material, and

a step for selectively modifying one or more material properties of at least one portion of the formed layer of sol-gel material."

Thus, again, Peng et al. fails to teach both steps of claim 56 because that reference discloses no layer of sol-gel material, and the sol-gel material is added only by the Examiner's postulated hypothetical combination with Liao et al. Thus, by the same reasoning as for claim 55 and its dependent claims, applicants respectfully submit that the Examiner has not shown that claims 12, 16 – 20, and 56 would have been obvious to a person of ordinary skill at the time of the invention.

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Claim 57 recites "A transparent thin film electronic device, formed substantially by a process comprising:

forming one or more material layers on a substrate, at least one of the material layers being a sol-gel precursor of a conductive material;

selectively modifying at least a first portion of the sol-gel precursor of a conductive material; and

removing at least a second portion of the one or more material layers, wherein the at least a second portion comprises one or more non-annealed portions of said one or more material layers." Claims 24 and 26 – 31 depend upon claim 57. Here again, Peng et al. fails to teach both of the first two acts of claim 57 because that reference discloses no layer of sol-gel material, and the sol-gel material is added only by the Examiner's postulated hypothetical combination with Liao et al. Therefore, with respect to claims 24, 26 – 31, and 57, applicants respectfully submit that the Examiner has not presented a *prima facie* case of obviousness under 35 USC § 103.

Therefore applicants respectfully request that the rejections of claims 3, 7 – 10, 12, 16 – 20, 24, 26 – 31, and 53 – 57 under 35 USC § 103 be withdrawn and that those claims be allowed.

Claims 4, 5, 13, 14, 25, and 26 stand rejected under 35 USC § 103 as being unpatentable over Peng et al. (US 2002/0016075) in view of Liao et al. (US 2005/0087513) and further in view of Kijima (US 2004/0136891). These rejections are respectfully traversed. Each of these claims depends upon one of independent claims 55, 56, or 57 discussed above. The Examiner correctly states that Peng et al. fails to teach the deposition process of the sol-gel films such as spin coating or spraying. The Examiner also states that it would have been obvious to one with ordinary skill in the art to "form the sol-gel ITO (sic) film by methods such as spin coating or spraying." An ITO film is not recited in any of the instant claims. While each of the elements of these dependent claims may be found in one of the three references cited, there is no suggestion in these references or any of the prior art to combine those elements as recited in dependent claims 4, 5, 13, 14, 25, and 26. Thus, for the same reasons recited above for the respective parent independent claims,

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applicants respectfully submit that the Examiner has not presented a *prima facie* case of obviousness under 35 USC § 103. Therefore applicants respectfully request that the rejections of claims 4, 5, 13, 14, 25, and 26 under 35 USC § 103 be withdrawn and that these claims be allowed.

Claims 58 – 66 stand rejected under 35 USC § 103 as being unpatentable over Peng et al. (US 2002/0016075) in view of Liao et al. (US 2005/0087513) and further in view of the 2002 article by Chung et al. and the 1998 article by Hosono et al. These rejections are respectfully traversed. Claims 58 – 66 depend upon claim 55. Both Chung et al. and Hosono et al. prepared their ITO films by sputtering ITO. Neither Chung et al. nor Hosono et al. discloses the sol-gel layer of claim 55 nor suggests the hypothetical combination postulated by the Examiner. Thus, for the same reasons given above in the discussion of claim 55, applicants respectfully submit that the Examiner has not presented a *prima facie* case of obviousness of claims 58 – 66 under 35 USC § 103. Therefore applicants respectfully request that the rejections of claims 58 – 66 under 35 USC § 103 be withdrawn and that these claims be allowed.

Claims 67 and 69 – 70 stand rejected under 35 USC § 103 as being unpatentable over Peng et al. (US 2002/0016075) in view of the 2002 article by Chung et al. and the 1998 article by Hosono et al. Claim 67 is amended hereinabove, incorporating the limitation, "the layer comprising a sol-gel material." Basis for this insertion is found in the application as filed, at least in paragraphs 12 and 23 and original claims 6, 15, 27, and 34. Claim 67 as amended recites "A method of forming a thin film comprising:

forming a layer of material on at least a portion of at least one surface of a substrate, the layer comprising a sol-gel material;

irradiating a first portion of the layer with a first amount of energy with at least one laser;

irradiating a second portion of the layer with a second amount of energy with the at least one laser."

Neither Peng et al., nor Chung et al., nor Hosono et al. suggests any combination that would combine their teachings in any manner that would

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correspond to the method of claim 67 as amended. Therefore applicants respectfully request that the rejections of claims 67 and 69 – 70 under 35 USC § 103 be withdrawn and that these claims be allowed.

Claim 68 stands rejected under 35 USC § 103 as being unpatentable over Peng et al. (US 2002/0016075) in view of the 2002 article by Chung et al. and the 1998 article by Hosono et al. and further in view of Liao et al. (US 2005/0087513). Claim 68 is canceled hereinabove.

Regarding claims 71 – 76, these claims are listed as rejected on the first page of the office action dated May 12, 2006, but no grounds for rejection are given. Claims 71 – 75 depend upon claim 67 as amended. Thus, the same reasoning as presented above applies to these dependent claims as to their parent claim 67.

Regarding claim 76 as amended, this claim recites (emphasis added): “A method of forming a thin film comprising:

forming a layer of material on at least a portion of at least one surface of a substrate;

*irradiating a first portion of the layer with at least one laser having a first focal point or first wavelength; and*

*irradiating a second portion of the layer with the at least one laser having a second focal point or a second wavelength.”*

Applicants respectfully submit that none of the prior art of record discloses or fairly suggests a method including irradiating first and second portions of a thin film layer differently, using different focal points or wavelengths as claimed.

Therefore, applicants respectfully submit that claims 71 – 76 are patentable over the prior art. Withdrawal of these rejections and allowance of claims 71 – 76 are respectfully requested.

The Heckner reference (DD 258000 A) made of record and not relied upon has been reviewed, and it is believed that the other references cited and discussed hereinabove are more pertinent than the Heckner reference.

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This response is believed to be fully responsive to each issue raised in the office action, but if the Examiner maintains any rejection, applicant would appreciate a more detailed explanation of precisely where in the references the combination is suggested and the relevant limitations are disclosed.

Applicants expressly reserve the right to file divisional and/or continuation applications with any canceled or non-elected claims, or with similar claims, or with claims to any subject matter disclosed in the present application or incorporated by reference.

Applicants believe that the claims as amended are patentable over the prior art and respectfully request that the rejections be withdrawn and that the claims be allowed.

Respectfully submitted,  
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